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**RIVERSIDE TRANSFORMATION AS URBAN  
LANDSCAPE CASE STUDY ON THE YANGPU  
RIVERSIDE RECONSTRUCTION IN SHANGHAI, CHINA**

**Abstract:** River as the natural element witness the origin of the city, promote its development and affect its form. However, with a rapid development of the city, industrial replacement and the stagnant areas have formed the blank of future development, which makes the rivers construct a new space-type remodeling urban form in a kind of urban landscape. Based on the case study of Huangpu Riverside Reconstruction in Shanghai, this paper analyzes the spatial elements, types and plasticity of the industrial heritage along the Binjiang River. During the urban development, adaptation of industrial heritage in waterfront section is discussed. The Huangpu River turns from life to production to life again and serves as a supporting resource to build new urban forms and lifestyles. In the conclusion part, the paper will compare the landscape type cases and try to illustrate the sustainable influence of the historical and cultural heritage rebuilding of the urban landscape on the type of space and the shaping of urban morphology. This paper is subsidized by NSFC project which is named as "Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region" (Grant No.51678412).

**Keywords:** Riverside, history & cultural, urban landscape, transformation.

**Place?**

**Natural Forms.** Lines are now the prototypes of (human) forms. However, originally we should say that "points" are the origins and prototypes of all forms, but we cannot trace back to the "initial points." They are not related to human beings. They are totally based on everything that nature has endowed. We can only base on them. Above observation and creation, so we focus on the "line."

The line is the first set of points, which implies synergy, which itself serves as a set boundary, and at the same time defines a binary relationship, showing a binary relationship. Heaven and earth gather at the front line, and people are above the earth, below the sky, and walk among the gods and be able to discern. It is the most stable set of points. "When we point out that there is a dead person, we have already thought about the other three parties together, but we have not considered the pure nature of the Quartet". Whenever we construct a "line," we also seek attribution, identify directions, and understand pluralism.

Lines are the geometric forms of human abstract things. We have been trying to find the core of the so-called things. However, the boundary allows us to clearly recognize the existence of the core, which itself can be used as a kind of core aggregation. It also means that we have to converge, point out the binary, divide away from chaos, give at both ends of the boundary, explore the core possibilities. Today, however, when we explore the core, we are infinitely far apart (escape) from the border, as if we already knew that the form of the content we are paying attention to is like a huge, closed, perfect circle (or other perfect centripetal geometry). The more you get away from the border, the more you can point to the essence. Architecture was also discussed as such.

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The natural environment provides people with survival needs and helps people settle down. When people live between heaven and earth, they must also “understand” the relationship between these two points and their interactions, that is, an existing experience. When the environment has meaning, people feel the truth of freedom, that is, there are behaviors and events occurring above the place. The construction of a natural site means that it is necessary to present a series of environmental levels and to express certain qualities endowed by heaven and earth. These qualities become the integrated stage of daily life in the environment, namely, landscape. Suppose we stripped the artificial part of the current city, leaving only the most primitive landscape structure: the river constitutes the initial boundary of the human settlement, and together with the earth constitutes a structure that bears settlements. This kind of “cosmic” landscape structure, on the whole, seems to indicate that there is an objective, external order, without any ambiguity. The Sun’s path describes a near-precise meridian while dividing the space. The river seems to be one of the most ingenious elements. From this point, human civilization originated, gathered and settled, and on the vast land and river stage, the universe was made to flourish with its own smallness.

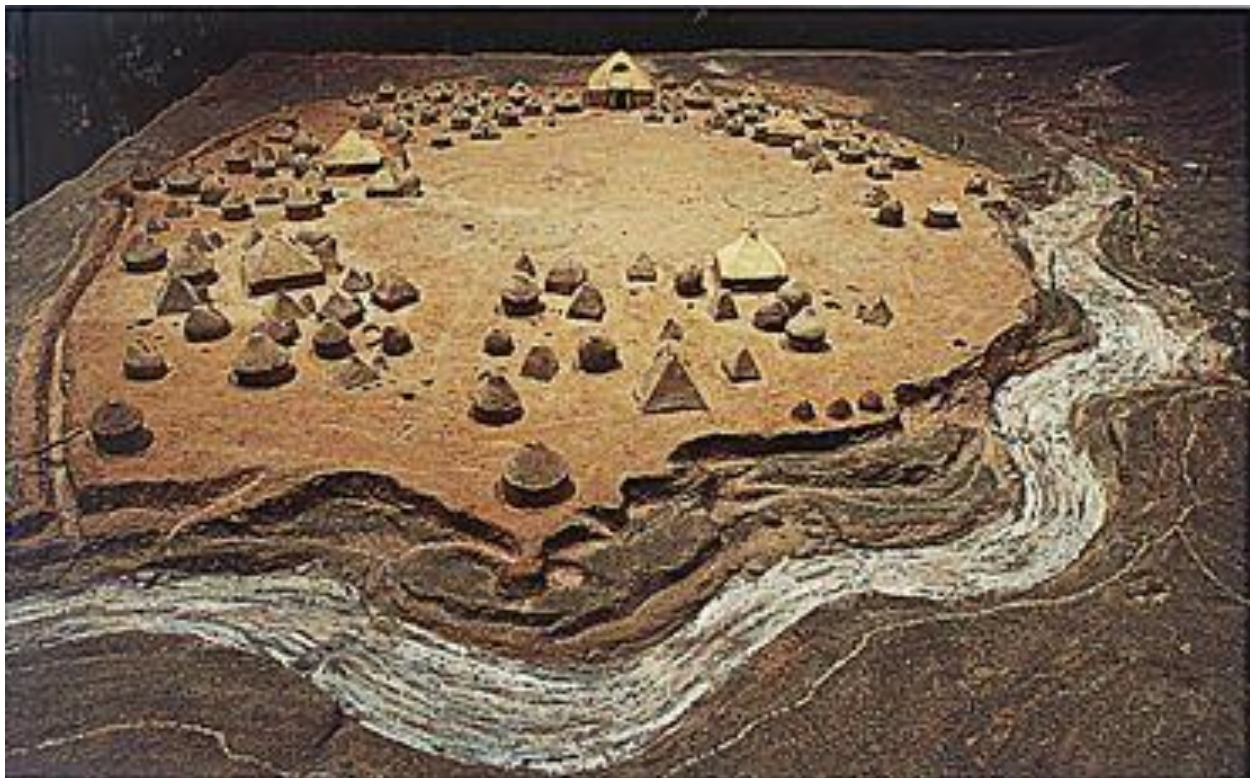


Figure 1. Cosmic Landscape structure

**Artificial gathering: settlements and cities.** The essence of the city is to live in. People relied on rivers to gather and scattered around their perimeters, but the rivers only served as land features, and did not affect the formation of settlement groups. People are the most basic type of settlement in a settlement and a basic point. Building houses and connecting with other people are all continuing to expand the prototype. The family is the most stable form of this environment. When people are intensive, multiple family organizational structures establish the same survival network, work together, live together, and then derive a primary social scale. In the author's view, the process of continuous expansion from one point, in fact, symbolizes the initial settlement form, that is, the circle, which symbolizes encirclement.

**Attribution displacement:  $1+1<2$ .** We talk about nature and talk about human settlements. However, if people live together in nature, can they always realize that they belong? People are not always directly connected with the natural environment. One of them is the transformation of

materials. Science does not make short efforts to reveal natural principles, and people are more willing to use their principles to transform nature. Blue bricks, cement, and steel ... are not the natural reality. Wood, adobe, stone, and iron ore come from the nature, but in the process of extraction and transformation, they reflect the confrontation with nature. People are wrapped in "reinforced concrete". Sen experienced the pleasure of artificial nature; the second is the construction of machinery. Tools are a great expression of human intelligence. People use tools to create every house and sketch every detail. However, whether it is subjective or passive today, it can only be replaced by machinery and standardization, creating an over-scale construction, otherwise it will not be able to survive in a reasonable way. Third, it is a state of living alone. This is the biggest challenge to the settlement pattern. However, people do not establish a close relationship, that is, they do not have any cooperation, and they can rely on each other to survive independently. The bottom line cost of survival is reduced, and it constitutes an independent unit. The connection between them is dispensable. It can be any gesture. When a child can deviate from his parents, his blood is unattainable and there is no such thing as a firm family structure.

Under these three principles, people are forced to lose their perception of the place and to isolate the conditions that make up the settlement. The first two points cut off the simple relationship with nature and direct contact, while the third point fundamentally challenged the nature of the settlement. If you live in a colony, you will be agglomerated. From a logical perspective, people are still together, living in a tall building, working in a space, things happening in an orderly manner, and the perfect "stranger society" for the founders. The shape of the city can be According to the rational topology of the structure is any geometry, however, this is not what people expect life. People are even willing to return to the countryside and visit famous mountains and rivers because there is a real "poetic dwelling" and the settlement is a natural and authentic form. People are returning to the landscape and understanding the "place."

### **Reconstruction of "Boundary" and "Form"**

Nowadays, in the river-land-dominated landscape structure, the modern city's form has its own characteristics because it displays the cities that have come through the legacy of the legacy. How to build borders, how to integrate border areas, how to connect with internal urban forms, and shape the urban form together? Can people appreciate the qualities of a place in today's cities? As one of the fastest growing cities, Shanghai has a strong typicality. Among them, the Yangtse Riverside renovation section has a good demonstration role.



Figure 2. Location

**The Old World of History: material.** The Binjiang section of Yangpu District is named after Yangshupu Port in the area. The Huangpu River on the east side is a U-shaped turn, forming the feature of the riverside landslide on the three sides of the Yangpu River. This east-facing riverbank is 15.5 kilometers long in Yangpu District. It is the longest riverbank in Shanghai's downtown area and is also known as the "East Bund".

In the early days of Shanghai Kaiyuan, due to the convenient water transportation conditions along the Yangshupu Road and low land prices, it became the first choice for setting up an industrial and factory production. For decades, foreign capital and national capital competed on this land, making it the largest industrial base in modern China in the first half of the 20th century, leaving a rich heritage of industrial civilization, including:

- (1) China's first machine paper mill—Shanghai Machine and Paper Bureau (1882);
- (2) China's first machine cotton textile mill - Shanghai Machine Weaving (1890);
- (3) Yang Shupu Water Plant (1883), the first onshore water plant in China opened by Li Hongzhang;
- (4) The largest thermal power plant in the Far East - Jiangbian Power Station (Yangshupu Power Plant) (1913)
- (5) China's earliest gas heating plant - Yangshupu Gas Plant (1934);
- (6) The earliest foreign spinning mill - Jardine Mills (1897);
- (7) and the shipyard with the largest number of docks – the British shipyard (1937)

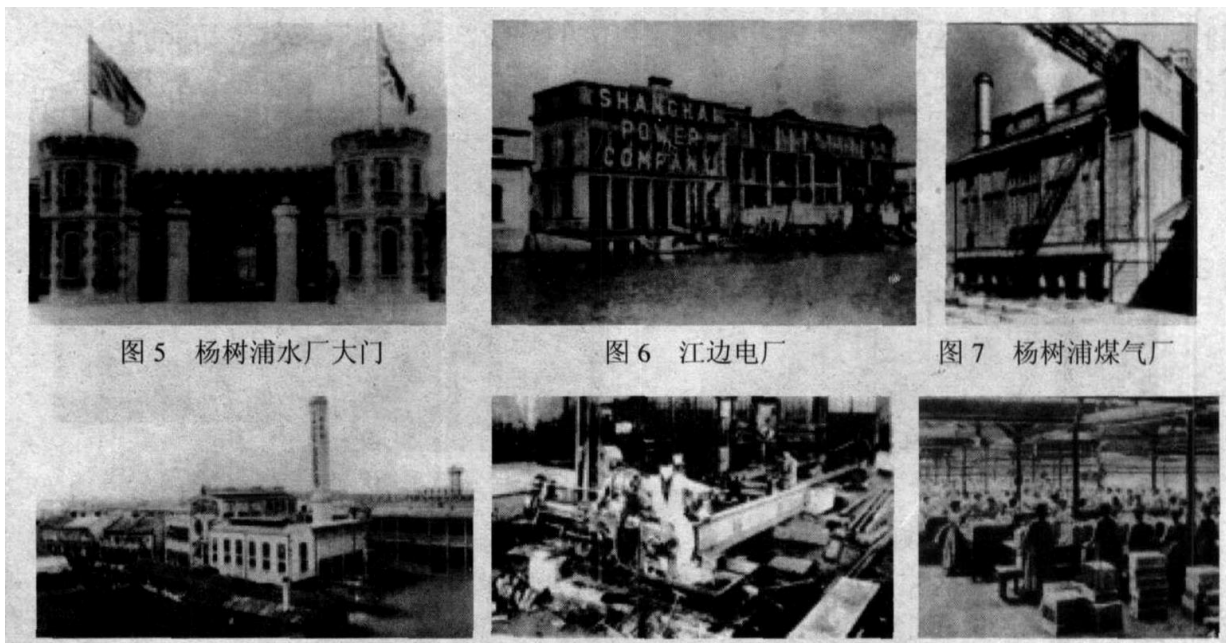


Figure 3. Industrial heritage

However, due to the replacement of industries, the old factory buildings were shut down and transferred, and their functions were lost. The core buildings with historic values were not well protected and they would not be transformed. Industrial civilization originated from the river and once had a very high development value. Now it becomes a cutoff between the city and the river bank. As the river bank is looking along the river, it gradually languishes and the landscape has begun to become messy. It has become a major drawback of Shanghai's floating city image. At the same time, however, these industrial heritages provide excellent historical material for the renovation of the riverside, and contain the place experience of modern industrial civilization.

**Anchorage and Dissociation.** "Anchor and disengagement" is a unique method and posture of the designer in this renovation project:

Anchoring is an industrial term. In short, it is the extension of an anchor. It is a fixed object similar to an anchor. If people are committed to the potential value and spirit of excavating a site, they will not be able to escape from the existence of various substances on the site. They are like the imprint of time on the ground in a secret way, or the key to the opening of historical narratives.



Dissociation is the state in which elements exist in simple form, also known as free state, just as oil is in water. In the practice of reform, the newly involved elements not only maintain respect for the existing environment, but also have limited access to the existing space. At the same time, in a clear and identifiable manner, they can avoid attachment and adhesion to existing environments and become old. The parts form an alignment relationship.

Under the guidance of this attitude, the Yangpu Riverside Public Space (Phase 1 Demonstration Section Project) opened up earlier has adopted the following four strategies and measures for practice:

#### 1) Recycling of industrial remains

One of the problems in the riverside transformation and core issues is how to use these industrial heritage elements. "If a space is sensitive enough, it can present such a quality as a testament to past real life." Walking on the banks of the river, we can clearly see the water plants, spinning mills and steel mills as elements. The construction constitutes the ground, armrests, railings, seats, curtains, etc. that are within easy reach of the people. In the process of people walking and the gap between them, the industrial remains that remain are the most authentic and time-honored. The vivid, most sensitive mapping is also the spatialization and materialization of memory that we emphasize.



Figure 4. Industrial Elements

#### 2) Combining the path clues

On the basis that the road network structure has been improved to a certain extent, the construction of the entire public experience falls on the construction of the slow system of "banded development" and "finger-infiltration". "Strip Development" mainly emphasizes the creation of multi-level and multi-path experiences along the river: hydrophilic platforms, water trestle bridges, jogging tracks and biking paths, with natural landscape elevations, open landscape views in various places, and deep Native landscape tour path.

"Finger infiltration" refers to the infiltration of public space to the direction of the city in the depth direction, and the connection of the slow system to the city. In combination with the extension of wedged green spaces and squares along the extension of the existing urban road network and water network, the experience of transition from urban to waterfront space will be strengthened.

### 3) Restoration and retention of native plants

In the process of emphasizing the original nature of the landscape, the designers keep the original Joe/shrubs on the site as much as possible. On the other hand, the newly added plants also select the original plant species on the Riverside site. The plant types that are not in the area are not selected. In terms of plant configuration, layout is based on spatial characteristics. At the scene, people can also find that large patches of miscanthus, pennisetum, and damp-tolerant plants such as onions, reeds, and other plants thrive on the site. Plants that are wild in nature echo the industrial architecture and have a strong appeal. These ornamental grasses are planted on the site as part of the spirit of the place.



Figure 5. "Slowing" system



Figure 6. Native plants

#### 4) Communication of surrounding land

The riverside renovation of Yangpu District has now become a “catalyst” for urban renewal. Although the city needs a process of renewal and development, the construction of the waterfront public space will greatly promote the subsequent improvement of urban functions and energy levels. The construction of public spaces, the enhancement of accessibility, and the improvement of municipal facilities will attract a large number of people. The increase in the number of people will bring about the enhancement of business and service facilities, promote the development of development sites, and thus promote the development of the entire region.

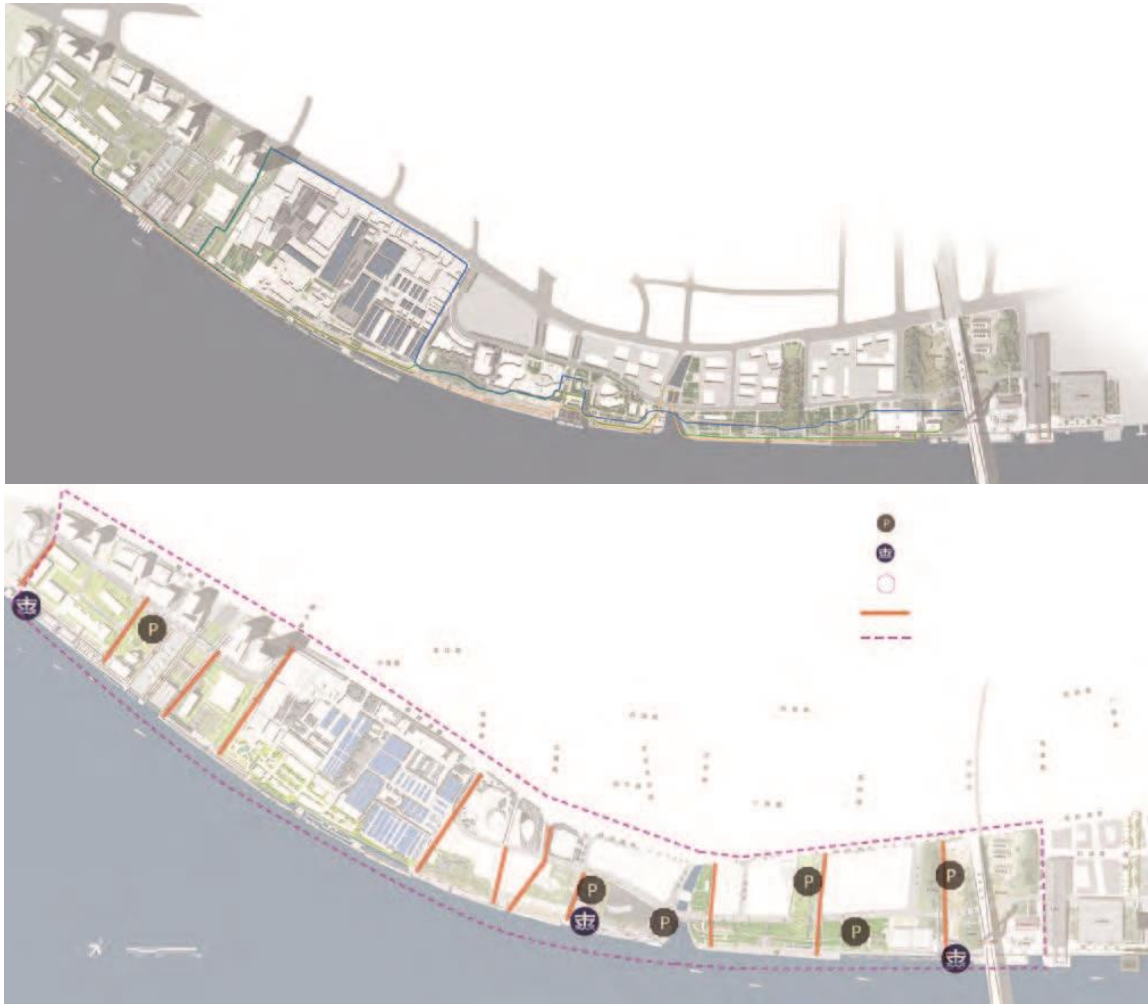


Figure 7. Further Planning

In consideration of the above, the designer not only evaluates the value of the house construction, but also screens and retains facilities, special structures, floor textures, and native plants. All the traces that contribute to the preservation of the spirit of the place "It has been kept as far as possible. The spirit of place exists both in the material anchored in the site and in the poetic presentation of the free space.

**Sprawling Border (River) Boundary.** At present Puxi and Pudong are bounded by rivers, and the construction of the border area presents "interesting" differences. People stand on the old wharf and rely on the old ship piles to look at the scene of the Lujiazui CBD across the Huangpu River. This dramatic scene should be more expressive than any symbolic description. It is the contrast caused by this time dimension that makes the Huangpu River have a one-line basis for the significance of the boundary.



The original river was the boundary on which people relied to live, while modern cities crossed boundaries and further expanded. Causes the border to become an element of the interior of the city. This gap seems to be a gap in the city's sprawl, breaking the rhythm to get a break, but nowadays, with the denser urban fabric extending beyond the scale, the river can no longer be a giant landscape element that affects the pattern of the city. When its role is only limited to making it on both sides of the river, we can't help but think: Does the river still have a meaning as a boundary?

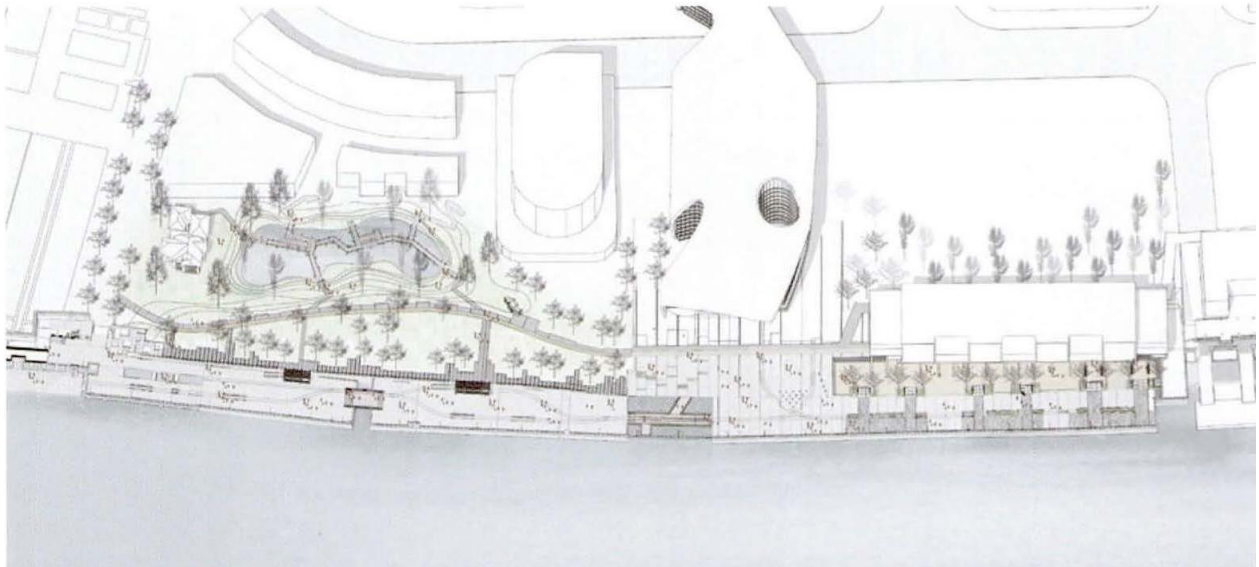


Figure 8. Site plan

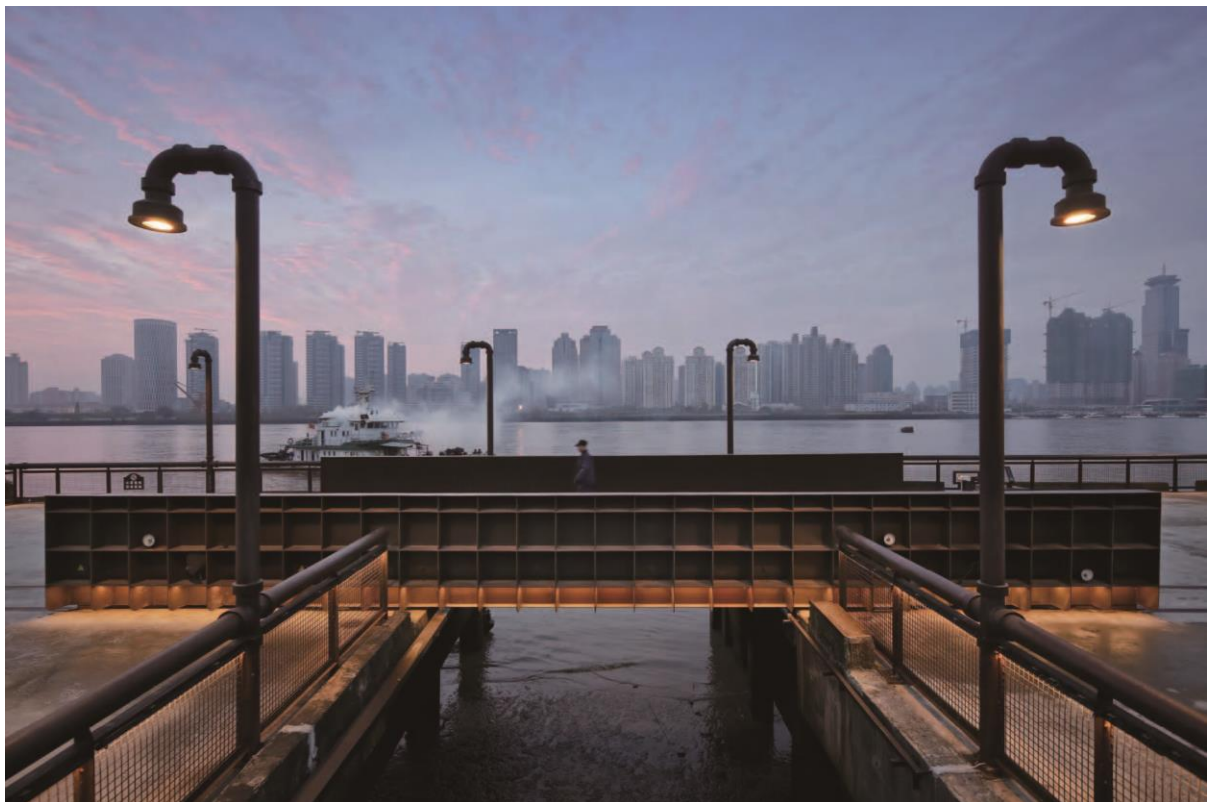


Figure 9. Contradistinction



### **Questioning: Boundary Patterns and Center Patterns**

How can you create a river boundary and give feedback on the shape of the city? There is a discussion of the border area and the center pattern here.

1) From the perspective of the boundary area, it is also the boundary. The biggest difference between the river and the wall is the extension of the interface. The wall is a vertical interface that means shielding and protection. In the siege, the two ends of the boundary can present different urban textures, and people will not feel abrupt. Walls block this heavy connection in cross-section. In particular, there are gates above the wall. Doors strengthen the definition of the relationship between the inside and the outside. This is also the intention of people building the wall: the difference between inside and outside. Therefore, when the city continues to expand, the border effect will become more pronounced, presenting more crushing and dense texture. When you break through the gates of the city, you will be particularly relaxed and open in the face of the vast land. The state of Habitat activities has also shifted from tension to leisure.

In contrast, rivers extend horizontally, meaning continuation and expansion. Because even if humans are so longing for the sky, the sky will not provide people with the possibility of residing, only the earth. From this perspective, the landscape and human settlement have the same direction of development. When the population increases and the city expands, the boundary will not become its barrier, but will be crossed, continuing similar textures, and the tension of the boundary will not exist.

2) In terms of the center structure, encircling simultaneously means to shape the center and the river means to be discrete. Here again, we have to mention about crowdedness, because concentration is the essence of the city, because inhabitants have created the center, the border, and the form. In the landscape structure elements, the shape of the parcel can reflect the relationship between the mountains rather than rivers, so people or surrounded by agglomeration or to build a city to embrace is to reflect this true nature. And when people build borders that are encircled, in fact such centers can be cramped to the extreme. They can be central kings. They can be core buildings. They can even be torches. When pushed to the extreme, such centers can even disappear as long as they can. Dependent on a clear context, or a logic of deduction, we can understand its structure. For example, when we see the circle, we can determine the position of its center. It is unique and unique. This circle can be absent or affect our understanding of the circle. Conversely, a single point can establish an infinite number of circles. Even though we know its geometric laws, we still cannot summarize its features and must assist with other details. Moreover, because of the topological relationship, we cannot determine the unique geometric relationship, so we cannot construct its shape. Therefore, encirclement can be the basis of human intelligence.

Of course, the borders may also have the possibility of blanking. People build borders within their limited cognitive scope, but they break through the borders in the context of unlimited development. At this time, people must build up the encirclement, which means there is insufficient significance. Therefore, we must establish a clear center or absolute logic, applicable geometric relations (laws). However, even in this case, the scale will eventually become out of control. In the current region of Shanghai, there are no obvious boundaries, nor a clear core and rational logic. For the river community, it is only an unrestricted, loose band that more embodies the functional value. If we can't use rivers to find suitable geometric opportunities, free and unrestrained expansion, there is no essential meaning for rivers to be in and out.

### **Conclusion: Why to build the form of urban?**

While constructing the urban form, people actually construct a kind of place relationship. Before people pursue "poetic dwellings", they must always obtain a relationship with the environment. This relationship can be free, rigorous, and beautiful, but it should be safe first. And this kind of security, in addition to this refers not only to the physical sense of defense, but also to find their own positioning relationship. People reach these two points by living together.

Inhabitation is the essence of the city. People have once again demonstrated their relationship with the natural environment and their independence. Therefore, a pleasant city can reflect the status of the vast majority of people living together in pursuit of common goals, so that people themselves will present an orderly and logical order. It does not require that all cities must reflect the natural structure or fit in with the landscape. Today our city is a city of reinforced concrete. We don't have to, we can't return to the original natural house, accompanied by vegetation, and befriend animals and birds. Therefore, we are always looking for ways to exist on the earth, and the city is the most appropriate way.

"Landscape" and "Settlements" together constitute a place where people live. "Space" and "characteristics" hint at the elements that make up this field. When people walk in it, be able to distinguish themselves, realize themselves, and understand the surroundings, they can create interactions between themselves and the environment but still cannot ensure the spirit of understanding. Only when they are everywhere they belong to the people they live in, they create by their own experiences. Ultimately, People can understand the "place spirit" of this place.



Figure 10. Overview

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